REMARKS

Reconsideration and the timely allowance of the pending claims, in view of the following remarks, are respectfully requested.

In the Final Office Action dated February 15, 2007, the Examiner rejected claims 1 and 3 under 35 U.S.C. § 103(a) as being unpatentable over Smayling '895 (U.S. Patent No. 5,348,895) in view of Yoo '830 (U.S. Patent No. 5,858,830); and rejected claim 2 under 35 U.S.C. § 103(a) as being unpatentable over the Smayling '895 and Yoo '830 and further in view of Bohr '332 (U.S. Patent No. 5,091,332).

By this RCE Amendment, claim 1 has been amended, claim 2 has been cancelled, and new claims 4-9 have been added. Applicant submits that no new matter has been introduced. As such, claims 1 and 3-9 are currently presented, of which claims 1, 4, and 7 are independent.

Insofar as the prior art rejections are still deemed relevant given the claim changes, Applicants traverse these rejections for the following reasons.

I. Prior Art Rejections of Claim 1.

As indicated above, claim 1 positively recites, *inter alia*, forming a first device isolation region through partial oxidation in the first area and forming a first type well with deep junction by diffusing the ions in the first area ***during the same partial oxidation process***. These features are amply supported by the embodiments disclosed in the written description. *(See, e.g.*, Specification: par. **[00236]**; FIG. 3).

With this said and in contrast to the Examiner's assertions, none of the applied references, whether taken alone or in combination, teach each and every element of claim 1, including the features identified above. In particular, the Examiner admitted that Smayling '895 fails to teach forming a device isolation region through partial oxidation and relied on Yoo '830 as allegedly teaching this feature. (*See*, Office Action: page 3). The Examiner then admitted that the combination of Smayling '895 and Yoo '830 fail to teach that the diffusion of ions is simultaneously conducted when the partial oxidation is formed and relied on Bohr '332 as allegedly teaching such a feature. (*See*, Office Action: page 4).

Applicants submit that Bohr '332 does not, in any way, teach forming a first device isolation region through partial oxidation in the first area and forming a first type well with deep junction by diffusing the ions in the first area ***during the same partial oxidation process***, as required by claim 1. Rather, Bohr '332 specifically discloses an ion implantation step ***followed*** by a high temperature step. That is, Bohr '332 discloses that the substrate is subjected to an ion implantation step in which phosphorus is implanted at an energy level of approximately 170 kev to a doping level of approximately 1 x 10^{13} cm^{-2}. This implantation is shown in FIG. 3 as lines **30**. (*See*, Bohr '332: col. 3, lines 51-55; FIG. 3).

Bohr '332 goes on to disclose that ***after*** the implantation step, the substrate is subjected to ***a high temperature step***, which comprises a wet high temperature sub-step and a dry high temperature sub-step. In other words, for the wet high temperature step, the substrate is heated in a steam atmosphere to 920°C in order to grow approximately 4600Å of silicon dioxide as shown in FIG. 4. The field oxide regions **32a**, **32b** and **32c** are grown during this oxidation step. Then, after the wet high temperature step, the substrate is subjected to a dry high temperature step comprising a temperature of 1100°C in a dry nitrogen atmosphere for 4 to 6 hours. (*See*, Bohr '332: col. 3, lines 63 – col. 4, line 7; FIG. 4). After the dry high temperature step, an n-type well **36** is formed beneath the member **26** which extends approximately midway beneath the field oxide region **32b**. (*See*, Bohr '332: col. 4, lines 8-11; FIG. 4).

In so doing, it is clear that there is no way that the combination of Smayling '895, Yoo '830, and Bohr '332 is capable of teaching or suggesting forming a first device isolation region through partial oxidation in the first area and forming a first type well with deep junction by diffusing the ions in the first area ***during the same partial oxidation process***, as required by claim 1.

Thus, for at least these reasons, Applicant submits that none of the references, whether taken alone or in combination, teach each and every element of claim 1. As such, claim 1 is clearly patentable. In addition, because claim 3 depends from claim 1, claim 3 is patentable at least by virtue of dependency as well as for its additional recitations. Accordingly, the immediate withdrawal of the prior art rejections of claims 1 and 3 is respectfully requested

II. New Claims 4-9.

New independent claim 4 is directed to a method of forming device isolation structures in an embedded semiconductor device positively recites, *inter alia*, forming a second type well with shallow junction in peripheral regions of the first device isolation structure and ***an entire region*** of the second device isolation structure between the first type well with shallow junction.

New independent claim 7 is directed to a method of forming device isolation structures in an embedded semiconductor device and positively recites, *inter alia*, forming a first type well with shallow junction in peripheral regions of the second device isolation structure and a region between the first device isolation structure and the second device isolation structure with a first photoresist pattern, ***the first device isolation and the second device isolation having a first mask*** and forming a second type well with shallow junction in peripheral regions of the first device isolation structure and a region of the second device isolation structure with a second photoresist pattern, ***the first device isolation and the second device isolation having a second mask***.

Applicants submit that, as best understood, none of the applied references, whether taken alone or in reasonable combination, teach or suggest each of the elements of claims 4 and 7, including the features identified above. As such, claims 4 and 7 are patentable. In addition, because claims 5-6 and claims 8-9, depend from claims 4 and 7, respectively, claims 5-6 and claims 8-9 are patentable at least by virtue of dependency as well as for their additional recitations.

Moreover, because independent claim 13 recites similar features to claim 1 that were shown to be patentable, Applicant submits that claim 13 is patentable at least for the reasons presented with respect to claim 1. And, because claims 14-24 depend from claim 13, claims 14-24 are patentable at least by virtue of dependency as well as for their additional recitations. Accordingly, the immediate withdrawal of the prior art rejections of claims 13-24 is respectfully requested.

III. Conclusion.

All matters having been addressed and in view of the foregoing, Applicant respectfully requests the entry of this Amendment, the Examiner's reconsideration of this application, and the immediate allowance of all pending claims.

Applicant's Counsel remains ready to assist the Examiner in any way to facilitate and expedite the prosecution of this matter. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the Undersigned at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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